

HEAD FIRST: MILITARY HELMETS

British Troops, 1916
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When we think of military technology, we assume that it is constantly evolving and changing to avoid becoming obsolete. Yet, military technologies may look back, hundreds of years, to build on designs that became obsolete to address new concerns. The metal helmet developed during World War I is a case in point.

Although metal infantry helmets were made obsolete by the introduction of gunpowder several hundred years before World War I, helmets returned to battle in mass numbers during this war. Ironically, just as improved military technology had rendered the metal helmet obsolete, changes in military technology at the turn of the 20th century

prompted a resurrection of helmets and personal armor.

From artillery to rifles and machine guns, weapons had now become capable of inflicting great destruction over previously unimaginable distances and the need to protect soldiers was even greater.

Understanding the emergence of the modern helmet requires an understanding of customs in uniform design in general. Well into the nineteenth century, combat was conducted at fairly close range. A soldier, whether aiming a cannon or firing a gun, needed to be able to see his enemy. The elaborate, almost fussy uniforms of the Napoleonic Wars, for instance, were not

simply showy costumes.

Uniforms were brightly colored and hats such as the “shako” and the “czapka” were flamboyantly large, in part so that commanding officers could see their troops through the thick smoke and chaos of the battlefield.

Re-Introducing Helmets

While some countries did issue helmets to their troops during the nineteenth century, these tended to be supplied to cavalrymen such as dragoons and cuirassiers. During the Crimean War, some Russian infantry were outfitted with helmets as were Prussian foot soldiers in the latter half of the century. But the wearing of

helmets remained uncommon during this period.

These nineteenth-century helmets were made of tough leather, and they were intended to be nearly as conspicuous as the more commonly worn softer headgear. The famous “pickelhaube” with which Germany entered the First World War (it was first issued in 1897) was an updated version of this helmet, with a visor in front and back and a spike protruding up from the middle. Fashion, not the need for protection, guided the shape of these leather hats.

Despite the introduction of leather helmets, soft caps continued to be the customary headdress for most armies up until World War One. Britain, for example, sent the BEF (British Expeditionary Force) across the Channel wearing peaked caps, while France equipped its men with a traditional wool kepi.

The devastation that began in August 1914 led to a rejection of this tradition of conspicuous uniforms and comfortable (often frivolous) hats. Although the British and Germans did not yet recognize the need for helmets, they now understood that uniforms should be of camouflage. German troops wore field gray tunic while the British wore olive drab.

These muted colors made sense for survival in the trenches but charging over the top against sweeping machinegun fire was still a journey into slaughter. Nevertheless, a soldier who blended in with the destroyed landscape of the battlefield, had a slightly better chance of survival



German pickelhaube
World War I
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than one who stood out in unnatural brilliance.

French Innovation

The French army learned the dangers of the new battlefield all too tragically in the first year of the war, when it sent its soldiers storming into German lines wearing heavy dark blue overcoats and brilliant red pantaloons. Reeling from the losses of so many of its men, the French army became the first to issue metal helmets.

France had started experimenting in as early as 1912 to develop a metal helmet. At the start of the war, some soldiers had been supplied with a small metal cap that fit under their kepi.

However, the French army settled on a larger helmet. It was nicknamed the “Adrian” after General Intendant Adrian. The Adrian helmet was a basic bowl

with a subtly curved brim and a crest that served as both decoration and cover for ventilation. Several other allied armies used the same design: Italy, Belgium, Russia, and Poland.

The Adrian was manufactured of fairly thin steel, but while it provided better “capital” protection than the kepi, it was effective against only glancing shrapnel. Along with the introduction of this new helmet, France also issued the “polio,” a new uniform of light “horizon blue.” (The pattern remained mostly unchanged, with a heavy overcoat still standard garb).

British Design

More striking than the differences between approaches was their one commonality: both countries produced helmets that were reminiscent of medieval designs.

The British Mark 1 (known as the Brodie helmet for its inventor, Engineer John Leopold Brodie) was a simple shallow bowl with a pronounced rim all the way around. Its progenitor was a helmet worn primarily by archers in the Middle Ages. For the British, the most important function for a helmet was overhead protection from the shrapnel, stones, and dirt that rained down into the trenches during artillery bombardments.

The Brodie was sturdy, if heavy. It was reasonably well balanced, although it still had a tendency to slip to the side when soldiers were on the run. Most importantly, it did not obstruct the infantryman's sight or hearing. Its main defect was that, like the Adrian, it offered very little side protection to the head. However, production was straightforward because the helmet could be made of a single piece of pressed steel.

The Germans and Austrians

Germany replaced the *pickelhaube* (which had proved impractical) with the M16 Stahlhelm. In contrast to the Brodie helmet, the Stahlhelm was a deep bowl, with an angled brim, or "skirt," running around the sides and back. It shielded a much greater proportion of the wearer's head, but at the

cost of reducing peripheral vision and limiting hearing. Although the form of this helmet is credited to the careful research of Dr. Friedrich Schwerd at the Technical University of Hamburg, this helmet is also directly traceable to a medieval forebear.

The Austrian army used the same helmet, as well as a variation known as the Berndorfer helmet.

Although the British Mk 1 and the German M16 were notably thicker than the Adrian, none of these helmets was expected to stop a direct bullet hit. Protection of this type was viewed as impractical, as a helmet which was thick enough to stop a bullet, would also be too heavy for prolonged wear or reasonable mobility.

Europeans also experimented with supplemental devices, such as face screens and extra plates that could be attached to the standard helmet during this period. The M16, for example, was produced with two lugs on the side, which allowed a face shield to be attached when required.

However, none of these additional pieces was issued widely. They were meant mainly for observers and snipers who were stationed at the very front lines.

The Adrian (Left)

The Brodie (Right) The Brodie was also used by American troops.

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Italy did not create a “national” helmet until well after the war but it did experiment very early in the War with a heavy, cylindrical helmet of limited coverage called the Farina.

Although it was clear that soldiers needed better protection than just cloth hats, developing the right design took time and thought.

For all that they protect soldiers, helmets have several disadvantages. First, they are invariably heavy. Protection commonly correlates with thickness, which in turn correlates with weight. The heavier the helmet, the more it tires its wearer. Helmets are also awkward for soldiers on the run, as they slip and tilt. They retain body heat and, when the sun is intense, they can concentrate this heat even more.

The more head the helmet covers, the more it reduces the wearer’s visual and auditory senses. Soldiers prefer to be mobile; in fact, a soldier’s survival depends on his ability to move quickly. Reducing a soldier’s awareness of his environment can expose him to danger.

In fact, experiments during the First World War indicated that blocking the face and protecting the neck left soldiers dangerously exposed. Soldiers need to be able to communicate with their comrades. A helmet that covers the mouth and nose hampers communication and breathing, both of which are crucial when a soldier is on the move. Finally, a brim that is too wide, or a skirt that is too long, restricts movement of the head, specifically when a soldier is tilting his head back to aim his weapon. This problem is intensified when a soldier is firing from a prone position.

With the introduction of the tank, Britain and France both recognized that tank crews, like the infantry, had particular requirements for protection. Together with leather coveralls that gave some protections

Stahlelm with camouflage, Public Domain

against burns and scrapes, tank personnel were also outfitted with helmets that fit into cramped, hot spaces, that dampened the effects of concussions and loud noises and that gave some protection against flying rivets, and yet could be worn for long sedentary periods.

While the re-introduction of the helmet undoubtedly saved the lives of countless men during World War I, other improvements in military technology meant that these men continued to be exposed to the dangers and horrors of war.

Benjamin L. Apt is the author "Mahan's Forebears: The Debate Over Maritime Strategy, 1868-1883," *Naval War College Review*, Vol. 50, 1997. He has long been interested in helmet design.

For Further Reading:

Floyd R. Tubbs and Robert W. Clawson, *Stahlhelm: Evolution of the German Steel Helmet*.

Bashford Dean, *Helmets and Body Armor in Modern Warfare*.

Paolo Marzetti, *Elmetti Helmets*.

Michael J. Haselgrove, *The History of the Steel Helmet*.

